

# A NOVEL DESIGN FOR A LIGHT WEIGHT AND DURABLE FIELD PRESS

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## ABSTRACT

The development of a light weight, washable, durable, and inexpensive field press is described and illustrated. A pattern and protocol for construction of the field press are provided as well as instructions for its use.

## RESUMEN

Se describe e ilustra un aparato portátil para pensar especímenes vegetales en el campo, hecho de material ligero, resistente y barato. Se aporta un patrón y el protocolo para construir la prensa junto con una guía para su uso.

As long as Botanists have collected plants, new and innovative methods have been developed to dry and preserve specimens that retain as much of the natural integrity of the living plant as possible (cf. Smith et al. 1886). Results of the progress in pressing, drying, and preserving methods are readily apparent upon viewing a series of herbarium specimens covering several generations of botanical collectors. The standard methodology employing newsprint, blotters, corrugated cardboard, and heat has been used for several decades to dry specimens, and details about composition, construction, and procedures for drying specimens are provided by a number of authors (e.g., Fosberg & Sachet 1965; Simpson 2006; Carter et al. 2007).

Various materials and methods including metal tubes or cans (vascula), cloth sacks, Styrofoam ice chests, and paper and plastic bags have been used to transport specimens from the field to drying presses. Alternatively, heavy and cumbersome drying presses may be taken directly to the field; however, their use is often prohibited by terrain, distances traversed, and adverse weather conditions. Several field press (portfolio) designs have been used over the years, including that of Fosberg and Sachet (1965). Haynes (2006) described a field press made from several pieces of cardboard corrugate cinched with a press strap. In the early 1990s, Dr. Anton A. Reznicek, curator of vascular plants at the University of Michigan, constructed a field press of cardboard and duct tape and secured with a cord, which was light weight and easy to use under most field conditions. During a field trip to central Arkansas in 1993 with Dr. Reznicek, Dr. Paul Rothrock, and Philip Hyatt, Dr. Reznicek was observed using a cardboard and rope press. Immediately after this field trip, the senior author constructed a prototype of the press described herein out of heavy cloth and rope. Over the years this cloth press has been modified to increase the ease of use and to perfect the overall dimensions. The second author has successfully improvised a variation on Dr. Reznicek's field press by cutting down corners of a cardboard carton and using the sides and top flaps, still attached, to hold specimens enfolded in newsprint.

## MATERIALS AND METHODS

### **Instructions and materials for making the Bryson Field Press (Fig. 1)**

1. Cut out two pieces of cotton canvas or similar weight cotton cloth, one piece 1 to 1.5 m long and 0.35 m wide and one piece 0.9 to 1.0 m long and 0.5 m wide.
2. Place cloth right side down.
3. To create hem, turn edges over 1.5 cm and fold over again, then pin hems to hold in place (Fig. 1, hem inset).
4. Clip small triangle at end of each piece of cloth, then fold the miter corners with double folds and pin (Fig. 1, corner insets).

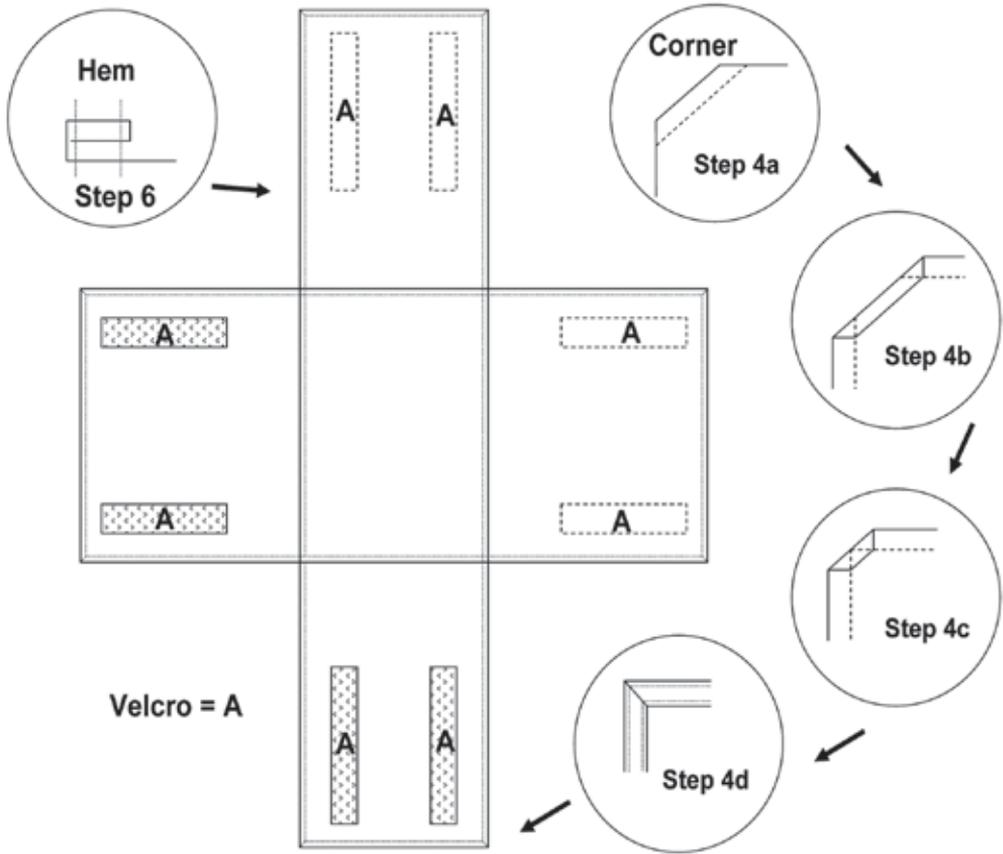
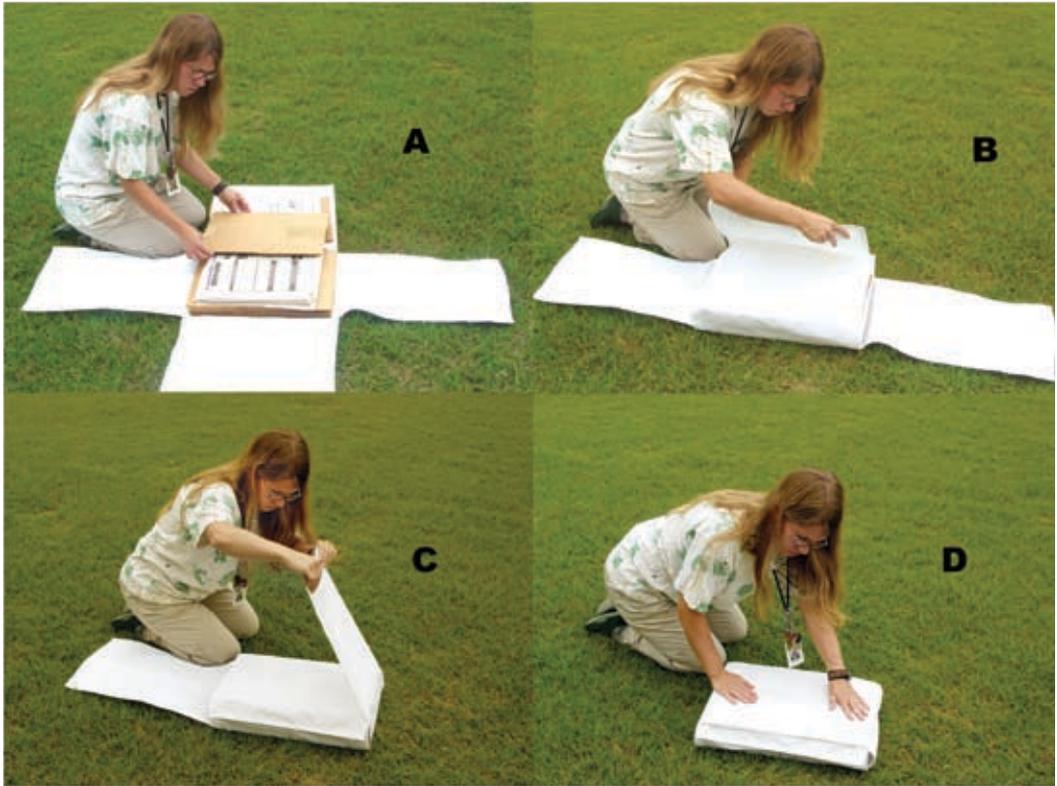


Fig. 1. Diagram of the Bryson Field Press.

5. Iron hem and corners prior to sewing.
6. Stitch around each hem and corner twice on the inside and twice near the outside edge and tie thread ends.
7. Cross pieces with hem side up and cloth right side down forming equal size opposing flaps.
8. Pin the two pieces together.
9. Sew the two pieces together by stitching over previous hem stitches where the pieces overlap and tie thread ends. One side can be left open to create a pocket for a record book, piece of sturdy corrugated cardboard, plywood, or other field supplies.
10. Pin Velcro to the cloth using care to align corresponding pieces on each side. Note that Velcro strips are attached to opposite sides of the cloth on opposing flaps.
11. Stitch around the edge of each piece of Velcro twice and tie thread ends. Strips of Velcro at least 5 cm wide provide better field press closure than narrower strips.
12. Remove all pins and the field press is ready to use.

#### DISCUSSION

The field press described herein (Fig. 1) is the result of over 15 years of field testing by the authors and except for its size and more permanent materials is based on Dr. Reznicek's initial concept. Durable, light weight, and washable, it is easy to use in a variety of field situations (Fig. 2). The press can be carried under the arm or attached to a back pack, an all terrain vehicle (ATV), or a saddle. It is also convenient for press-



**FIG. 2.** Photos illustrating the Bryson Field Press (A, loading the field press; B, closing the first set of flaps; C, closing the second set of flaps; and D, closed field press).

ing and transporting plants in a boat or canoe where a conventional press is too heavy or bulky. It is useful for pressing large numbers of specimens rapidly and for pressing plants that wilt rapidly or lose floral parts upon harvesting. The capacity of the press varies depending on the length of the press flaps and thickness of plant specimens and materials used to divide the specimens; however, we have stacked more than 100 specimens in a single field press. The porous cotton fabric allows the press to “breathe” and the drying process to begin. Whereas other materials, such as treated canvas, plastic lined cloth, or heavy plastic were tried in several prototypes, these materials proved to be unacceptable, because they prevented drying and increased condensation, promoted mold and mildew growth, and caused discoloration of specimens. However, heavy weight polyester or other synthetic fabric may be substituted for cotton to make the field press suitable for field work in tropical areas or environments with constant moisture. Although extra cardboard corrugates, plywood, or felt blotters add weight and bulk, they can be used in the field press. Three heavy pieces of corrugated cardboard (one on top, one on bottom, and one between newsprint and the pressed specimens) provide the lightest weight, while allowing for adequate handling of specimens. Additional corrugates can be used to separate specimens from different collection sites or to separate pre-numbered and unnumbered newsprint. We developed a system of pressing the first specimen in pre-numbered newsprint and the duplicates in unnumbered newsprint. When these are placed into a conventional drying press from the top to bottom of each stack from the field press, the numbered newsprint is removed first from the conventional drying press. Thus, the duplicates can be easily tucked into the folded numbered sheet. Unknown to us, Dr. John Thieret and his students used a similar numbering technique (Haynes 2006).

A reasonably skilled seamstress can cut out, pin, and sew a field press in about two hours. The major expenses in constructing one of these presses are the fabric and Velcro. Blemished and seconds fabric can be purchased to save in the overall cost. Also, we have noted that lighter colored fabrics absorb less heat from sunlight than darker colored fabrics. Although wider Velcro strips are substantially more expensive, Velcro strips at least 5 cm wide provide better closure than narrower strips. The estimated cost of fabric, Velcro, and thread is \$20.00 to \$35.00 per press, but may vary depending on the price and weight of the fabric and amount and width of Velcro. The first author experimented with addition of expandable pockets for temporarily storing woody stems and fruit and straps or handles for carrying the press in the field similar to commercially available presses. Each of these modifications may provide better utility for specific situations, but add cost and bulk to the simple design described herewith.

Specimens are pressed between newsprint and stacked on top of one another with one piece of corrugated cardboard on the top and another piece on the bottom of the stack. The press is closed and secured by pressing the Velcro strips on the first set of flaps against those on the opposing set. Next the second set of opposing flaps is closed and secured. Two sets of opposing flaps allow for greater pressure on the stacked specimens, hold specimens in place within the newsprint, and provide pressure on plant parts that were folded over in fitting the specimen to newsprint sheets. With this field press, unlike vascula, cloth sacks, Styrofoam ice chests, and paper or plastic bags, specimens are in the exact order in which they were collected, facilitating correlation with field notes. When field work is completed, the newsprint folds containing specimens are removed and placed into a standard drying press. While placing the specimens in the drying press, they can easily be repositioned as needed, e.g. refolding leaves or other plant parts to expose flowers, fruits or other structures. Precautions should be taken to keep loaded field presses as cool as possible and out of direct sunlight. For optimal results, plants should be taken from the field press and placed in drying presses as soon as possible, e.g. at the end of each day. However, the time in the field press can be extended depending upon environmental conditions and the kinds of plants being pressed. Plants such as grasses and sedges may remain in the field press longer than plants that are subject to discoloration or contain high water content, and specimens may be kept in the field press under refrigeration overnight with no discernable ill effects. Although not recommended, in unusual circumstances of exigency, we have kept specimens in a field press for almost a week.

#### ACKNOWLEDGMENTS

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#### REFERENCES

- CARTER, R., C.T. BRYSON, and S. DARBYSHIRE. 2007. The importance of voucher specimens in documenting research in weed science with notes on their preparation, handling, and storage. *Weed Technol.* 21:1101–1108.
- FOSBERG, F.R. and M.-H. SACHET. 1965. Manual for tropical herbaria. *Regnum Veg.* 39:1–132.
- HAYNES, R.R. 2006. John W. Thieret, a student's perspective (1967–2005). *Sida* 22:25–31.
- SIMPSON, M.G. 2006. *Plant systematics*. Elsevier Academic Press, San Diego, California.
- SMITH, J.D., I.C. MARTINDALE, J.W. CHICKERING, JR., C.E. BESSEY, A.W. CHAPMAN, R.I. CRATTY, J.J. DAVIS, C.F. JOHNSON, C.E. SMITH, and G. MCCARTHY. 1886. Specimens and specimen making. *Bot. Gaz.* 11:129–134.